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1 [Mining anomalies using traffic feature distributions](#)



[Anukool Lakhina](#), [Mark Crovella](#), [Christophe Diot](#)

August **SIGCOMM '05: Proceedings of the 2005 conference on Applications, technologies, architectures, and protocols for computer communications**
Publisher: ACM

Full text available: Pdf (323.63 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 34, Downloads (12 Months): 318, Citation Count: 31

The increasing practicality of large-scale flow capture makes it possible to conceive of traffic analysis methods that detect and identify a large and diverse set of anomalies. However the challenge of effectively analyzing this massive data source for ...

Keywords: anomaly classification, anomaly detection, network-wide traffic analysis

Also published in:

October 2005 **SIGCOMM Computer Communication Review** Volume 35 Issue 4

2 [Davis social links: integrating social networks with internet routing](#)



[Lerone Banks](#), [Shaozhi Ye](#), [Yue Huang](#), [S. Felix Wu](#)

August **LSAD '07: Proceedings of the 2007 workshop on Large scale attack defense**
Publisher: ACM

Full text available: Pdf (267.40 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 11, Downloads (12 Months): 126, Citation Count: 0

Internet based communication systems appear in many forms from email to Instant Messenger and chat services to Voice over IP (VoIP). Common weaknesses of these current communication systems include inherent security vulnerabilities to attacks such as ...

Keywords: P2P, SPAM, routing, social network

3 [Energy-efficient link-layer jamming attacks against wireless sensor network](#)



[MAC protocols](#)

[Yee Wei Law](#), [Lodewijk van Hoesel](#), [Jeroen Doumen](#), [Pieter Hartel](#), [Paul Havinga](#)

November 2005 **SASN '05: Proceedings of the 3rd ACM workshop on Security of ad hoc and sensor networks**

Publisher: ACM

Full text available: Pdf (607.75 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 20, Downloads (12 Months): 305, Citation Count: 5

A typical wireless sensor node has little protection against radio jamming. The situation becomes worse if energy-efficient jamming can be achieved by exploiting knowledge of the data link layer. Encrypting the packets may help prevent the jammer from ...

Keywords: MAC protocols, clustering, denial-of-service attacks, jamming, security

4 [Energy-efficient link-layer jamming attacks against wireless sensor network](#)



[MAC protocols](#)

[Yee Wei Law](#), [Marimuthu Palaniswami](#), [Lodewijk Van Hoesel](#), [Jeroen Doumen](#), [Pieter Hartel](#), [Paul Havinga](#)

February 2009 **Transactions on Sensor Networks (TOSN)** , Volume 5 Issue 1

Publisher: ACM


Full text available: Pdf (884.88 KB)

Additional Information: [full citation](#), [appendices and supplements](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 151, Downloads (12 Months): 220, Citation Count: 0

A typical wireless sensor node has little protection against radio jamming. The situation becomes worse if energy-efficient jamming can be achieved by exploiting knowledge of the data link layer. Encrypting the packets may help to prevent the jammer ...



Keywords: MAC protocols, clustering, denial-of-service attacks, expectation maximization, jamming

- 5 [Distributed power control for energy efficient routing in ad hoc networks](#)
[Pierpaolo Bergamo, Alessandra Giovanardi, Andrea Travasoni, Daniela Maniezzo, Gianluca Mazzini, Michele Zorzi](#)
January **Wireless Networks** , Volume 10 Issue 1
2004
Publisher: Kluwer Academic Publishers
Full text available:  Pdf (246.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#), [review](#)

Bibliometrics: Downloads (6 Weeks): 21, Downloads (12 Months): 154, Citation Count: 3

In this paper, distributed power control is proposed as a means to improve the energy efficiency of routing algorithms in ad hoc networks. Each node in the network estimates the power necessary to reach its own neighbors, and this power estimate is used ...



Keywords: ad hoc networks, energy efficiency, power control

- 6  [Passive online rogue access point detection using sequential hypothesis testing with TCP ACK-pairs](#)
[Wei Wei, Kyoungwon Suh, Bing Wang, Yu Gu, Jim Kurose, Don Towsley](#)
October **IMC '07: Proceedings of the 7th ACM SIGCOMM conference on Internet measurement**
2007
Publisher: ACM
Full text available:  Pdf (560.62 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 13, Downloads (12 Months): 118, Citation Count: 4

Rogue (unauthorized) wireless access points pose serious security threats to local networks. In this paper, we propose two online algorithms to detect rogue access points using sequential hypothesis tests applied to packet-header data collected passively ...

Keywords: TCP ACK-pairs, rogue access point detection, sequential hypothesis testing

- 7  [Secure Time Synchronization in Sensor Networks](#)
[Saurabh Ganeriwal, Christina Pöpper, Srdjan • apkun, Mani B. Srivastava](#)
July **Transactions on Information and System Security (TISSEC)** , Volume 2008 11 Issue 4
Publisher: ACM
Full text available:  Pdf (490.90 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 35, Downloads (12 Months): 331, Citation Count: 0

Time synchronization is critical in sensor networks at many layers of their design. It enables better duty-cycling of the radio, accurate and secure localization, beamforming, and other collaborative signal processing tasks. These benefits make time-synchronization ...

Keywords: Sensor networks, delay, message authentication code, time synchronization

8 An adaptive communication architecture for wireless sensor networks



Adam Dunkels, Fredrik Österlind, Zhilao He

November 2007

SenSys '07: Proceedings of the 5th international conference on Embedded networked sensor systems

Publisher: ACM

Full text available: Pdf (230.70 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 33, Downloads (12 Months): 344, Citation Count: 3

As sensor networks move towards increasing heterogeneity, the number of link layers, MAC protocols, and underlying transportation mechanisms increases. System developers must adapt their applications and systems to accommodate a wide range of underlying ...

Keywords: protocol stack, wireless sensor networks

9 A Survey of Energy Efficient Network Protocols for Wireless Networks

Christine E. Jones, Krishna M. Sivalingam, Prathima Agrawal, Jyh Cheng Chen

September 2001

Wireless Networks, Volume 7 Issue 4

Publisher: Kluwer Academic Publishers

Full text available: Pdf (271.55 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 80, Downloads (12 Months): 527, Citation Count: 61

Wireless networking has witnessed an explosion of interest from consumers in recent years for its applications in mobile and personal communications. As wireless networks become an integral component of the modern communication infrastructure, energy ...

Keywords: energy efficient design, low-power design, mobile computing, network protocols,, power aware protocols, wireless networks

10 [Performance optimizations for wireless wide-area networks: comparative study and experimental evaluation](#)



[Rajiv Chakravorty, Suman Banerjee, Pablo Rodriguez, Julian Chesterfield, Ian Pratt](#)

September 2004

MobiCom '04: Proceedings of the 10th annual international conference on Mobile computing and networking

Publisher: ACM

Full text available: Pdf (262.46 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 25, Downloads (12 Months): 162, Citation Count: 6

We present a comparative performance study of a wide selection of optimization techniques to enhance application performance in the context of wide-area wireless networks (WWANs). Unlike in traditional wired and wireless IP-based networks, applications ...

Keywords: 3G, CDMA 2000, GPRS, HTTP, TCP, UMTS, cellular, cross-layer interactions, multi-layer performance optimizations, proxy

11 [Applying packet techniques to cellular radio](#)

[N. F. Maxemchuk](#)

December 1999

Wireless Networks, Volume 5 Issue 6

Publisher: Kluwer Academic Publishers

Full text available: Pdf (310.07 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 0, Downloads (12 Months): 19, Citation Count: 0

12 [Funneling-MAC: a localized, sink-oriented MAC for boosting fidelity in sensor networks](#)



[Gahng-Seop Ahn, Se Gi Hong, Emiliano Miluzzo, Andrew T. Campbell, Francesca Cuomo](#)

October 2006

SenSys '06: Proceedings of the 4th international conference on Embedded networked sensor systems

Publisher: ACM

Full text available: Pdf (481.94 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 17, Downloads (12 Months): 139, Citation Count: 7

Sensor networks exhibit a unique funneling effect which is a product of the distinctive many-to-one, hop-by-hop traffic pattern found in sensor networks, and results in a significant increase in transit traffic intensity, collision, congestion, packet ...


Keywords: MAC, funneling effect, wireless sensor networks

13 [Implementation and evaluation of a QoS-capable cluster-based IP router](#)

[Prashant Pradhan](#), [Tzi-cker Chiueh](#)

November 2002 **Supercomputing '02**: Proceedings of the 2002 ACM/IEEE conference on Supercomputing

Publisher: IEEE Computer Society Press

Full text available:  Pdf (215.68 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 27, Citation Count: 0


A major challenge in Internet edge router design is to support both high packet forwarding performance and versatile and efficient packet processing capabilities. The thesis of this research project is that a cluster of PCs connected by a high speed ...

14 [!\[\]\(097f282928a75fda352c49209e0c9233_img.jpg\) RI-MAC: a receiver-initiated asynchronous duty cycle MAC protocol for dynamic traffic loads in wireless sensor networks](#)

[YanJun Sun](#), [Omer Gurewitz](#), [David B. Johnson](#)

November 2008 **SenSys '08**: Proceedings of the 6th ACM conference on Embedded network sensor systems

Publisher: ACM

Full text available:  Pdf (1.10 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 71, Downloads (12 Months): 312, Citation Count: 0

The problem of *idle listening* is one of the most significant sources of energy consumption in wireless sensor nodes, and many techniques have been proposed based on *duty cycling* to reduce this cost. In this paper, we present a new *asynchronous* ...


Keywords: asynchronous duty cycling, energy, medium access control, ns-2, sensor networks, tinyos

15 [!\[\]\(ab5cc6e2ac9ed23b71c10a3741cf792a_img.jpg\) Admission of QoS aware users in a smart network](#)

[Erol Gelenbe](#), [Georgia Sakellari](#), [Maurizio D'arienzo](#)

March 2008 **Transactions on Autonomous and Adaptive Systems (TAAS)** , Volume 3 Issue 1

Publisher: ACM

Full text available:  Pdf (3.31 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 13, Downloads (12 Months): 234, Citation Count: 0

Smart networks have grown out of the need for stable, reliable, and predictable networks that will guarantee packet delivery under Quality of Service (QoS) constraints. In this article we present a measurement-based admission control algorithm that helps ...

Keywords: Measurement-based admission control, cognitive packet network, quality of service, self-aware

16 End-to-end congestion control for TCP-friendly flows with variable packet



size

Jörg Widmer, Catherine Bouremans, Jean-Yves Le Boudec

April **SI GCOMM Computer Communication Review** , Volume 34 Issue 2
2004

Publisher: ACM

Full text available: Pdf (200.39
KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#)

Bibliometrics: Downloads (6 Weeks): 10, Downloads (12 Months): 75, Citation Count: 1

Current TCP-friendly congestion control mechanisms adjust the packet rate in order to adapt to network conditions and obtain a throughput not exceeding that of a TCP connection operating under the same conditions. In an environment where the bottleneck ...

17 An OPNET-based simulation approach for deploying VoIP

K. Salah, A. Alkhoraidly

May **International Journal of Network Management** , Volume 16 Issue 3
2006

Publisher: John Wiley & Sons, Inc.

Full text available: Pdf (1.64
MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 2, Downloads (12 Months): 249, Citation Count: 2

These days a massive deployment of VoIP is taking place over IP networks. VoIP deployment is a challenging task for network researchers and engineers. This paper presents a detailed simulation approach for deploying VoIP successfully. The simulation ...

18 Experiences in Design and Implementation of a High Performance Transport Protocol

Yunhong Gu, Xinwei Hong, Robert L. Grossman

November **SC '04: Proceedings of the 2004 ACM/IEEE conference on**
2004 Supercomputing

Publisher: IEEE Computer Society

Full text available: Pdf (193.37
KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#)

Bibliometrics: Downloads (6 Weeks): 11, Downloads (12 Months): 80, Citation Count: 4

This paper describes our experiences in the development of the UDP-based Data Transport (UDT) protocol, an application level transport protocol used in distributed data intensive applications. The new protocol is motivated by the emergence of wide area ...

Keywords: Performance, Design, Experimentation, UDT, transport protocol, data intensive application, design, implementation

19 [Profiling internet backbone traffic: behavior models and applications](#)



[Kuai Xu](#), [Zhi-Li Zhang](#), [Supratik Bhattacharyya](#)

August 2005 **SIGCOMM '05**: Proceedings of the 2005 conference on Applications, technologies, architectures, and protocols for computer communications

Publisher: ACM

Full text available: [Pdf](#) (850.20 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 44, Downloads (12 Months): 311, Citation Count: 32

Recent spates of cyber-attacks and frequent emergence of applications affecting Internet traffic dynamics have made it imperative to develop effective techniques that can extract, and make sense of, significant communication patterns from Internet traffic ...

Keywords: behavior profiles, network monitoring, traffic measurement

Also published in:

October 2005 **SIGCOMM Computer Communication Review** Volume 35 Issue 4

20 [Lightweight network support for scalable end-to-end services](#)



[Kenneth L. Calvert](#), [James Griffioen](#), [Su Wen](#)

August 2002 **SIGCOMM '02**: Proceedings of the 2002 conference on Applications, technologies, architectures, and protocols for computer communications

Publisher: ACM

Full text available: [Pdf](#) (331.84 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Bibliometrics: Downloads (6 Weeks): 5, Downloads (12 Months): 59, Citation Count: 16

Some end-to-end network services benefit greatly from network support in terms of utility and scalability. However, when such support is provided through service-specific mechanisms, the proliferation of one-off solutions tend to decrease the robustness ...

Keywords: end-to-end services, ephemeral state, programmable network, router achitecture

Also published in:

October 2002 **SIGCOMM Computer Communication Review** Volume 32 Issue 4

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